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ORIGINAL ARTICLES

HAEMORRHAGIC DISEASE OF THE NEWBORN.*

By Dr. H. Lorenzo Emidy
Woonsocket, R. I.

There are many infants who bleed in the very early days of life. They may bleed from the nose, mouth, stomach, bowels, mucous membranes, umbilicus, skin, vagina, and brain. Haemorrhages may occur in a normal infant. It is not uncommon to see a sub-conjunctival haemorrhage. Certain females manifesting vaginal bleeding are normal. Ecchymoses may be of a purely mechanical origin such as instrumental deliveries, traction, malformed or small pelves, and a large headed infant passing through a narrow birth canal. Haemorrhages of the newly-born may be due to an infectious process, either pyogenic or luetic in type, or haemorrhagic disease of the newborn.

The last-named is an interesting and peculiar disturbance, in that no one etiological factor is generally accepted and the cure obtained by the recognized treatment is so suddenly accomplished that it oftimes seems miraculous to the parents.

Haemorrhagic disease of the newborn is not to be confused with haemophilia. One is primarily a disease of childhood or adult life and the other of infancy. "Bleeder's Disease" is seen only in the male and is distinctly hereditary. The clotting time in haemophilia is usually five to six times longer than that of normal blood, whereas in haemorrhagic disease of the newborn it is distinctly shorter.

Congenital syphilis, like haemorrhagic disease of the newborn, may cause bleeding. However, there are certain differential points. In the luetic infant the bleeding as a rule takes place at a later date than in haemorrhagic disease. A familial history of syphilis may be extracted from the parents. Certain stigmata of specific infection may be noted in the infant, briefly an enlarged liver and spleen, skin lesions, snuffles, condylomata and rhagades, desquamating palms and soles, a bloody-mucoid discharge from the nose, an "old-man" expression of the face, a slow or absent weight gain, and a positive Wassermann reaction of the parents' blood. "Parents' blood" is repeated, because it is most unusual to demonstrate a positive reaction in the luetic infant until it is four or five months old. Further, the response to treatment aids us in the differentiation of these two conditions. In the haemorrhages of the syphilitic, blood transfusion is of little avail, whereas anti-luetic treatment controls, and vice-versa in haemorrhagic disease of the newborn transfusion is specific and anti-luetic therapy useless.

Infectious disorders other than syphilis may be the cause of the bleeding. Any of the pyogenic organisms gaining entrance to the blood-stream may be the causative factors. Almost all known types of pathogenic bacteria have been isolated from the blood streams of the septic infant with haemorrhagic manifestations. The common routes of infection are the umbilicus, nose, throat, nasopharynx, gastro-intestinal tract and breaks in or abrasions of the skin and mucous membranes. The contrasting points of sepsis and haemorrhagic disease are these; in a blood stream infection the temperature of the infant of normal development pursues the great swings, so often seen in septic conditions, but in the emaciated baby the temperature may be normal and frequently is sub-normal. A febrile rise in haemorrhagic disease is usually slight. In a septicaemia the focus of infection may be demonstrable, in haemorrhagic disease none can be found. The lymph glands which drain the region of the initial lesion in sepsis are usually enlarged, and the spleen is also hypertrophied. These findings are absent in haemorrhagic disease. If the organism is a hemolytic one or particularly virulent, we find a jaundiced skin. Finally, if we persist, we usually obtain a positive culture of the blood; whereas the blood of the infant suffering from haemorrhagic disease is sterile.

The diagnosis of haemorrhages from mechanical forces is made from the location of the lesions and from the history of the delivery.

*Read before the Rhode Island Medical Society, at the Annual Meeting, June 5th, 1930.

Prematurity predisposes to bleeding and very often of intracranial location.

Haemorrhagic disease of the newborn, because it is a definite clinical entity, should only be termed such when there is no discoverable cause for the bleeding. It is an expression which denotes a condition found in infants usually occurring within the first few days after birth. The term includes many conditions due to a disturbance of various factors in the coagulation of blood.

Like many other abnormal blood conditions its etiology is very obscure, although many theories have been advanced. Is it caused by a gangrene of the bowel, or ulcerations of the intestine, or a haemorrhagic enteritis, or asphyxia or a hyperaemia of the intestinal vessels, or a thrombosis of the umbilical vein, or haemorrhagic infarcts in the floor of the fourth ventricle, or local changes in the capillary walls, or metabolic changes in blood and blood vessels, or deficiencies in prothrombin, thrombokinase, or fibrinogen? From such a varied and numerous collection of etiological factors certain findings stand out, namely, that there is some disturbance in the mechanism of coagulation in which the balance between pro-thrombin and antithrombin is disturbed.

The blood findings in haemorrhagic disease are those of an acute anaemia following a sudden blood loss. There is a steady decline in the red-cell count and haemoglobin as the bleeding continues. There is a leucocytosis, with a preponderance of polymorphonuclear neutrophils and immature cells. The platelet count is usually normal. The bleeding time is frequently prolonged and the clotting time very variable. A decrease in prothrombin may sometimes be shown.

In most cases of the disease the bleeding usually occurs between the second and seventh day of life, and rarely later than the twelfth day. The haemorrhages are most frequently multiple and the loss of blood and the increasing anaemia rapid because of the continual oozing. No part or organ of the body may escape the bleeding. The most common sites are the navel, the intestines (melena neonatorum), stomach, mucous membranes, skin, and brain. Today it is often a parent's desire or a physician's practice to circumcise the newborn in the first few days of life. Such procedure, if routine, may be extremely hazardous.

The haemorrhages may be very evident such as in a true melena, or they may be concealed such as in a constant oozing into the brain with a few petechial or ecchymotic spots in the mucous membranes of the mouth. In a mild case of melena the presence of blood in the stool may be discovered only by a test for occult blood. If we familiarize ourselves with the early signs and symptoms of the intracranial manifestations of a haemorrhagic disease, many lives might be saved. Because of the apparent triviality and lack of importance of two early warnings which the infant gives us, these danger signs are either unrecognized or disregarded.

All nurses and others who are entrusted with the care of the newborn in the early days of its life should be taught, reminded of and emphatically impressed with the importance of reporting the diminution or loss of the suck reflex and the change in or loss of the cry—let us repeat—the loss of the suck reflex and cry! The robust healthy infant who took the breast with avidity seems to tire easily or to refuse to suckle at all. The strong infant who had a lusty and forceful cry may appear sleepy most of the time, may be thought of as a well-behaved baby who rarely cries, is never cross, and if he does cry does so with a little moan or high-pitched squeak. These are the danger signs! If the bleeding is unrecognized other changes rapidly take place in the patient. There may be haemorrhages elsewhere. The rosy cheeks lose their color and a striking pallor is noticed. The lethargy gradually increases so that it may be impossible to arouse the babe. The arms instead of being up and beside the head are held to the sides of the baby. The head, which is usually held to one side, is straight, with the chin flexed upon the neck. The tongue may protrude slightly. All in all the infant assumes a strikingly unusual posture. Fundi examination usually reveals nothing because the open fontanelle is the safety valve for the increased intracranial pressure. A general flaccidity of all muscles becomes more marked. When the legs and thighs are abducted one does not feel the normal resistance. The fontanelle begins to feel tense and then bulges. Slight twitchings make their appearance followed by convulsions. The respirations now become labored, the pulse may remain normal or become slow, cyanosis replaces the pallor, coma ensues and then death.

In the treatment of haemorrhagic disease of the newborn, many therapeutic measures have been followed. Calcium, gelatin, adrenalin, styptics of

all kinds, and sera of various sorts have been used. None of these seem to be of any value. The treatment of choice is blood transfusion. In an intracranial haemorrhage one may desire a lumbar puncture for diagnostic or therapeutic reasons. The fluid withdrawn, if the puncture is accomplished without breaking or entering one of the sub-arachnoid vessels, will show fresh or old blood or be xanthochromic. It is a wise procedure to postpone a lumbar puncture until transfusion is completed.

If the disease is only moderate in its severity, the introduction of whole blood intramuscularly may stop or control the bleeding. However, because of the ease of and the far greater beneficial results of an intravenous transfusion, such procedure is desirable. The blood may be obtained from the father, mother, or any other donor. It is well, if time permits and there is no urgency, to either type or cross-agglutinate the recipient's and the donor's blood. Very often, however, the transfusion must be done in the shortest time possible and it is generally safe to forsake such laboratory details because the agglutinins of the infant's blood are not present in a great enough concentration to cause any reaction with a blood of a different group.

The direct or the indirect method of transfusion may be used. Of the two, the indirect seems preferable. This method is as efficacious as the direct, and it has certain advantages, namely, the mechanical apparatus used is so simple that it may be made by any physician; second, the blood may be transported without danger of coagulation; third, there is no chance of the transfusion being disagreeably interrupted by a clotting of the blood, and fourth, sufficient blood may be taken at one operation for a transfusion to be given the second day if such is deemed necessary.

In the indirect method the blood is prevented from clotting by the addition of a 2% solution of sodium citrate. To every ten cubic centimeters of blood one cubic centimeter of this anti-coagulant is added. The amount of blood to be given at one transfusion is usually from five to ten cubic centimeters for every pound of the infant's body weight, and such blood is to be introduced slowly.

The infant presents certain accessible veins; among these are the external jugular, the scalp veins, the veins of the extremities and the longitudinal sinus. The last-named, with suitable technique and precaution, not only is very satisfactory but it is one of the easiest veins to enter because of its size and its immobility.

The prognosis made in haemorrhagic disease of the newborn should be a cautious one. When there exists an intracranial haemorrhage the outlook is always grave. In certain cases the disease seems to be fulminating because of the rapid appearance of unfavorable signs, the amount of bleeding, and the great prostration of the little one. Other types seem less critical. If the haemorrhages are from points other than the brain, and if suitable treatment is immediately instituted the prognosis is favorable.

SUMMARY.

1. Haemorrhagic disease of the newborn is a definite clinical entity.

2. It should be diagnosed only when there is no discoverable cause for the haemorrhages.

3. The earliest signs of an intracranial bleeding are the loss of the suck reflex and the loss of cry.

4. The specific treatment is blood transfusion.

5. The indirect method of transfusion is preferred.

SPONTANEOUS PNEUMOTHORAX IN CHILDREN, WITH REPORT OF CASE.*

REUBEN C. BATES, M.D.

122 WATERMAN STREET

According to Moncrieff[1] the occurrence of pneumothorax in babies or young children is uncommon. In 1903 Bovaird[2] reported 19 cases covering ten years literature. From 1919 to 1926 there appeared published accounts of nine cases. Most of the text-books on diseases of children make a very brief mention of this condition. Griffith[3] describes it as being sometimes found after pneumonia, whooping cough, measles, diphtheria, emphysema or associated with empyema or abscess of the lung which has burst through the pleura, or resulting from an injury due to a foreign body in the lung. He also believes that it is accompanied by

*Read before meeting of the W. W. Keen Club at the April meeting, 1930.

pus in the pleural cavity and is usually due to trauma, with or without fracture of rib, or to puncture of the lung by an exploring needle. The severe expiratory effort occurring in whooping cough, especially if broncho-pneumonia be present, might produce pneumothorax.

Although many cases reported in late years seem to have been of tuberculous origin there is a difference of opinion regarding the cause. Cruchet[4] estimated 40% of all cases of pneumothorax in children as being due to tuberculosis. Holt believes that pneumothorax, complicating tuberculosis, is rare under 3 years of age. According to Sutherland the most characteristic form of pneumothorax is that following acute pneumonia processes, generally of tuberculous character.

Scott[5] reports a statistical series of 177 cases from birth to 15 years of age. The death rate was found to be highest in the first five years of life. There were in the first five years of life 117 children, of whom 68 died, a mortality of 58%; in the second five-year period 32 children, of whom 16 died, or a 50% mortality, and in the third five-year period 24 children, of whom nine died, a 37% plus mortality. Of the 177 patients there were 94 deaths, or a 53.1% mortality.

Most cases show a sudden onset with sharp stabbing pain in the affected side, and increasing dyspnoea. Inspection generally shows immobility of the affected side. Palpation reveals diminished or absent vocal fremitus and displacement of the cardiac impulse. There is usually hyper-resonance, later becoming flat if fluid develops. Ausultation shows either absent or suppressed breath sounds and frequently there is a distinct metallic quality to respiration. We may be able to hear the Coin sound, or the so-called metallic tinkles which are caused by bubbles of air in the compressed pocket of air. The history of sudden dyspnoea, or its gradual onset within a few hours, in an apparently healthy person, who shows a "wooden" tympany or hyper-resonance over one chest, with diminished or absent breath sounds, should be sufficient to make the diagnosis of pneumothorax.

Spontaneous pneumothorax is evidently meant to refer to cases occurring naturally in persons with no demonstrable lung disease. Up to 1912 Nickolsky had reported 90 cases. In healthy individuals the onset may be so insiduous and the signs so vague that the condition may be overlooked very easily.

It often occurs after strenuous exercise such as a hard day's work or after a severe sneeze, hard cough or sudden deep inspiration. Pneumothorax is a serious complication of any disease of childhood, particularly when there is any tuberculous tendency. The younger the child the more serious the prognosis. One of the common complications of pneumothorax is empyema.

The condition may recur and sometimes on the opposite side. Morrison reports an interesting case of recurrent and spontaneous pneumothorax with complete recovery. Stein[8] has reported an interesting case of congenital pneumothorax with recovery.

Report of Case:

A boy, aged 2½ years, was admitted to the Infants' Ward of the Rhode Island Hospital August 12, 1929, because of fever, cough, dyspnoea and discharging ears. The day before admission it was noticed that the child was listless and wanted to lie down all the time. He had considerable difficulty in breathing but had not complained of any pain.

The family history was said to be negative especially for tuberculosis.

The past history was negative except for discharging ears since birth.

Examination:

Examination showed a well developed child breathing with difficulty and slightly cyanotic. Temperature 101, pulse 140, respirations 40. A

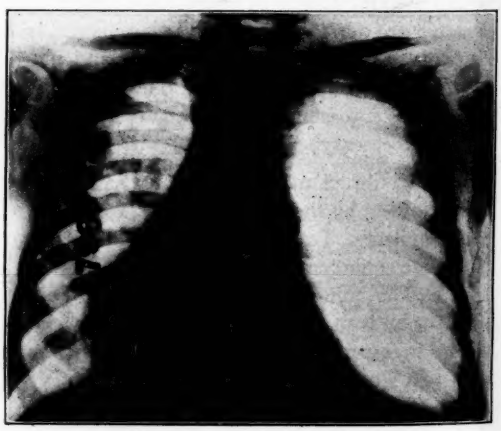

Fig. 1. Pneumothorax Showing Almost Complete Collapse of Lung.

purulent otitis was noted on both sides. The child was slightly dyspneic and seemed quite uncomfortable. There was limited expansion on the right side and the percussion note was definitely tympanic on this side. The apex of the heart was outside the nipple line in the 5th interspace. The liver dullness was obliterated. The breath sounds were absent on the right side except for a small area particularly at the base, while the sounds on the left were very loud and harsh.

The blood Wassermann was negative and the W.B.C. was 20,000. The intradermal tuberculin tests 1:000, 1:500 and 1:100 were negative. The Von Pirquest was negative. August 13, Roentgenograms showed complete collapse of the right lung with pneumothorax as shown in Fig. 1. September 9, there was some re-expansion of the right lung. September 27, the right lung continued to show greater expansion, demonstrated in Fig. 2. The heart shadows were normal.

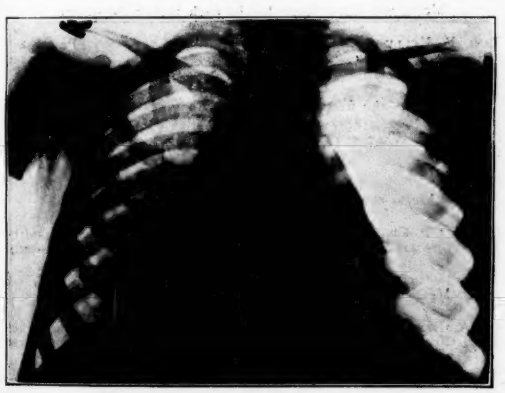

FIG. 2. ROENTOGENOGRAM TAKEN SIX WEEKS LATER SHOWING PARTIAL RE-EXPANSION OF THE LUNG.

During the first ten days in the hospital the child was having considerable difficulty with breathing but later this became much improved and gradually he became quite active and happy. On two occasions Dr. Albert Miller used carbon-dioxide and oxygen anaesthesia in an attempt to force the breathing and thereby aid in the greater expansion of the lungs. No improvement was noted, however. Four weeks after admission to the hospital the lung began to expand and the child was discharged on October 17, 1929, apparently in excellent health. Upon discharge the Roentgenogram showed a normal lung and the heart in normal position.

Note—Since this article was written the boy was again admitted to the R. I. Hospital on November 27, 1929. At this time Roentgenograms showed a probable convalescent pneumonia. The child was not very sick and was sent to Lakeside Preventorium. For the past eight months the boy has been in excellent health and frequent examinations have failed to disclose any evidence of tuberculous focci.

This case is presented because of its interest in adding to the literature a case of spontaneous pneumothorax with apparent complete recovery. The author has been unable to prove the existence of tuberculosis in the child although many writers believe this to be the primary cause of pneumothorax.

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[1]Moncrieff, A. M. D. Brit. J. Children's Diseases, Vol. 23, Jan.-Mar. 126 p. 37.

[2]Bovaird, Arch. of Pediat. 1903 p. 817.

[3]Griffith. Disease of Infants and Children.

[4]Cong. Internat, de la Tuberc., 1905 2:238 1906.

[5]Scott, A. J. Reprint of Transactions: J. A. M. A. 1928.

[6]Campbell, H. B. N. E. J. of Medicine. Aug. 29, 1929, Vol. 201.

[7]Pierson, P. H. Spontaneous Pneumothorax, Boston M. & S. Journal 1918, Vol. 178, p. 385.

[8]Stein, J., M.D. Congenital Pneumothorax, Am. J. Dis. of Children, Vol. 40, July 1930.

DENTAL GRANULOMAS

George L. Rohdenburg and Sigmund W. A. Franken, New York (*Journal A. M. A.*, July 20, 1929), concluded that the so called dental granuloma is primarily an epithelial cyst which most probably arises following irritation of the epithelial sheath of the tooth. The nature of this irritant may be various. The condition occurs slightly more frequently in women than in men. The average age of the patients is 40 in women and 44 in men. This epithelial cyst may, subsequent to its formation, become infected by a variety of microorganisms, of which the most common is the nonhemolytic streptococcus. Infection was demonstratable in 11 per cent of 100 granulomas examined histologically, and in 64 per cent of 65 granulomas examined bacteriologically.

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The R. I. Medico-Legal Society—Last Thursday—January, April, June and October. Henry M. Boss, Jr., President; Dr. Jacob S. Kelley, Secretary-Treasurer.

EDITORIALS

SHALL WOMEN SMOKE?

Nicotine, the active principle of tobacco, is one of the most powerful drugs. On account of its extreme toxicity it is rarely employed in medicine. Its physiological effects are emetic, depressant and anti-spasmodic. When inhaled as tobacco smoke tolerance is rapidly acquired and a habit is quickly formed. Continued use of tobacco by smokers leads to chronic pharyngitis, gastric disorders, nervous depression and an irritable heart. Constant use of tobacco by smoking or chewing discolors the teeth, irritates the respiratory mucous membrane, raises the blood pressure and causes a noticeable reduction in mental efficiency. The inveterate smoker sooner or later develops functional amaurosis or blindness due to retinal atrophy.

Both tobacco and its active principle are useful for destroying parasites affecting fruits, flowers and vegetables. The parasiticides must be handled with caution as poisoning effects are likely to follow their accidental inhalation. As in the case of

morphin and cocain the danger from nicotine in the community is less from an occasional poisonous dose than from the constant effect resulting from the continuous use by those who have acquired the habit.

The American Indian smoked tobacco in pipes but apparently did not use it to excess. Its use was ceremonial rather than habitual. Europeans modified this use by rolling tobacco into cigars and cigarettes and grinding it to make snuff. Tobacco is smoked, chewed and inhaled as snuff. Its greatest popularity is reached in the form of cigarettes which are produced and consumed in billions.

No valid argument has been suggested in favor of the use of tobacco. It remains a wasteful, injurious and rather disgusting habit. The tobacco habit is so ingrained in men of all races that it is probably impossible to secure any improvement in the present condition by legal regulation or moral suasion. Among women the tobacco habit has not yet taken such a hold. Women may smoke cigarettes but have not adopted cigars or pipes. Chewing tobacco and snuff do not generally appeal to them. There is still a chance that women may be persuaded to abandon the vicious cigarette habit. If the medical and lay press will do its part by keeping before the minds of the people the true status of the tobacco habit, the natural common sense of women will eradicate from their numbers a habit which is inconsistent with their delicacy and charm.

DOCTORS AND TRAFFIC.

It is a fact that as a class, Doctors of Medicine are a straightforward, law-abiding group of citizens. Giving much to their fellows, working long and late for the poor of the city and more than willing always to do their civic duty.

Their education, training and observation teach them that both natural and man-made laws should be obeyed for the benefit of all. So, with the municipal traffic laws; doctors, who perhaps drive in city streets more than almost any other class of motorists, realize the need for regulation and safe handling of traffic.

Members of the profession have an opportunity all too often to witness the individual suffering as well as the economic loss occasioned by carelessness of both motorists and pedestrians.

It is interesting to note, however, how apparently few police officers know, or if they do know, give any recognition to the doctor's car in traffic. The insignia of the American Medical Association means next to nothing to the average policeman. Often in responding to an urgent call the physician's car is held up repeatedly and for minutes at a time while a fleet of trucks or a horse-drawn wagon is given the slow right of way. It would seem reasonable to believe that the average officer if he recognized a doctor's car would try to expedite its passage. No doubt he does, but most observed traffic men apparently are bored and disinterested anyway and none too anxious to extend themselves for any individual motorist.

Again—the story is told of a prominent physician who, attending a confinement case, parked his car for two hours on a little travelled residence street outside the patient's house, and after a night of considerable anxiety, he emerged to be greeted with a "ticket" for parking at night and an equally inexorable patrolman who seemed overwhelmed with his sense of "authority."

Another gentleman, a surgeon of repute, was given a "ticket" and a none too restrained "lecture" by a traffic officer upon whose wife the surgeon had operated and saved her life and for charity, in a hospital ward. This "ticket" was for a very minor offense unconsciously committed while the surgeon was responding to a call for help from a hemorrhage case.

It would be very much worth while if each police station was supplied with a large replica of the automobile insignia of the American Medical Association so that the officers might become thoroughly familiar therewith.

The medical profession of Rhode Island does not desire any unfair "special privileges," but it does wish for a fair interpretation of the letter of the law in minor traffic offenses, taking into consideration the circumstances of a doctor's attendance upon the sick.

CHILD PSYCHOLOGY.

Child psychology has been defined by one man as the science that concerns itself with the general laws which guide and control the behavior of children in relationship to their physical environment and to one another.

The day when the child should be seen and not heard is gone forever. Today the study of adult behavior reveals the tremendous importance of the study of child psychology. It is important that those who see the children in their environments should have an elementary knowledge of the subject and not leave this entirely in the hands of the psychologists and the psychiatrists.

A few of the fundamental causes of so-called badness and nervousness in children will indicate that the general practitioner and the pediatrician have wonderful opportunities to observe and correct these. These causes may be classed under these general headings: 1. The difficulty of adjustment between home and school. 2. The handicap of some physical condition, notably nutrition, sight, speech or organic defect. 3. Unwholesome conditions in families, either environmental or moral. 4. Improper use of leisure time with no chance for real recreation. 5. Poor equipment in habit training.

It is evident that these causes must be known by the physicians and their significance recognized. It is most important that all physicians help in stabilizing the programs in mental hygiene, so that the extremists and the faddists may not get control. In this way the benefits from this vital program will be practical and will be directed to those that need it.

RHODE ISLAND HOSPITAL
CLINICAL-PATHOLOGIC CONFERENCES

Oct. 14, 1930.

Case Reported by Dr. Alex. Burgess.

The following abstract of the clinical history was distributed:

J. K., age 55.

On October 5, 1927, J. K., a married man, 55 years old, born in Ireland and working as a locomotive engineer, was admitted with C.C. of diabetes and weakness in his legs. He was known to have had diabetes for the past 2 years and had been under treatment but was unable to keep on the diet while working. For the past 2 months he had been troubled with weakness and tingling sensations in his legs.

P. H.: Had whooping cough at 37 years. Submucous resection 5 years ago. Otherwise negative. M. H. and F. H. negative.

S. H.: Always a hard worker. No excesses.

Occupational: Has always worked as a polisher of iron and copper boilers and finally became an engineer.

P. E.: A well developed but poorly nourished man. Chest, negative. Abdomen, negative. Skin of legs tense and shiny.

Laboratory: On admission Van Slyke 60%. Blood sugar 444 mgm, urine showed sugar and acetone. W.B.C. 6,500, R.B.C. 4,650,000, Hgb. 90%, smear normal. After treatment urine remained negative but blood sugar showed average 200 mgm. E.K.G. showed a poor myocardium. Patient improved rapidly and was discharged on Nov. 19, 1927.

Six days after discharge, the patient was readmitted complaining of precordial pain with marked edema of the extremities and of the scrotum, moderate ascites, and rales in both lung bases. He appeared cachetic but was in no distress. With the use of diuretics, the edema rapidly disappeared. A biopsy of the skin was made. Blood pressure 80/40. E.K.G. showed a poor myocardium. On one occasion, the liver was thought to be palpable. X-rays showed fluid at both bases, an arteriosclerotic heart and calcification of the vessels in his feet. The blood sugar varied from 182-276 mgm. with almost constantly negative urines on a diet of C_9PF_{11} with insulin units 15-10-10. An ingrown toe-nail was removed while here. After a favorable course he was discharged improved with his only complaint that of precordial pain.

On April 30, 1930, two and a half years since last entry, the patient again re-entered the hospital. In the interval he had been doing quite well under care of the O.P.D. He was gradually becoming weaker and more irritable. For the past week, he had been vomiting nearly everything eaten. A benzidine test on the vomitus was + + + + P. Exam. Moist rales heard at both bases. Systolic murmur at the apex. Abdomen was tympanitic in the midline but dull in both flanks. No fluid wave—otherwise negative. Extremities had a slight pitting oedema. Wassermann and Hinton negative. W.B.C. 13,700. Blood sugar 182 mgm., and urine negative. The patient ran a downhill course. He continued to vomit but never fecal in type. He became distended but the surgeons thought the condition was not surgical. Treatment consisted of stupes, clyses, intravenous therapy, and lavages,

all to no avail. The patient sank rapidly and died 12 days after his admission.

October 14, 1930.

Dr. Burgess: "This patient, 55 years old, was named John Kelly. The initials J. K. on the sheet will prove interesting later on.

"He is a man 55 years of age who came into the O.P.D. with diabetes and came into the house Oct. 5, 1927. There were not many interesting things about him at that time but while he was here we noticed there was a slight tint to his skin and there was some discussion whether his skin was natural for an Irishman or not. I do not remember which side I was on but I hope it was the correct one. He was an elderly diabetic of 55 and gave the history of having had it a number of years. He was a locomotive engineer. He was discharged. We had an electrocardiograph on him on his first admission, which is here, and it showed a very poor T wave. The cardiographist thought there was a bad heart muscle. He did well on a diabetic diet. He had a high blood sugar of 444 mgm., which came down and he did pretty well but the day on which he was discharged he was persuaded rather hurriedly to go from one floor to the other. He was damaged and readmitted. His blood pressure was down to 80/40. There was marked edema and ascites. An electrocardiogram was again taken and was the same as the other, the low T wave indicating undoubtedly myocardial weakness. We had a rather difficult time with him. Blood sugar varied from 182-286 while urine sugar was normal. We did not consider that unusual as it is rather common in diabetics. He did pretty well on his diet.

"During this time, he had an ingrown toe nail operated on. I do not remember whether he had a good pulsation in his dorsalis pedis arteries. During this admission, we decided definitely that he did have a pigmented skin. He had a rather dark skin for an Irishman so we persuaded him to let us get a bit of skin and we took it up to Boston and had the test for iron pigment. Dr. Mallory sent us a very pretty slide which showed iron."

Question: "Which part of the body was it from?"

Answer: "The arm."

"The reason that I said there was interest in the name of John Kelly was that, in another month, we had another man named John Kelly with pigmented skin and sent it up to Boston but Dr. Mallory did not send his report because he thought he was doing a duplicate. Later, I inquired of Dr. Mallory about it and learned that it, too, was positive. This man went out to Howard, where he died.

"This is as far as we could get on the clinical side up to the final admission. This was made on Dr. Gormley's service the day before he went off service. There is not much to say except that he went down hill and died twelve days after this admission. We felt when we were discharging him from our service that the diagnosis was bronzed diabetes or hemachromatosis. We felt that he probably had a cirrhotic liver but we did not feel that his ascites was due to the liver but to the evidences of myocardial failure.

"We were interested to find on his second admission whether he had been associated with copper and found that he had been a polisher of iron and copper and then became an engineer.

"Dr. Mallory's work indicates that hemochromatosis is the result of copper poisoning. I felt that if we could get contact with copper that was important. He has never been able to explain why ingestion of copper should present a pigment. Others who have tried this have not always been able to produce the same results. I am persuaded that Mallory's original work was correct. There seems to be a very definite relation with the ingestion of copper. In this case, we found that he had polished copper for years and before that, he had been in contact with metals and also as far as we could find out from every source he was not a man who used alcohol. The other man, J. K., was a man who used alcohol.

"Most of the important things are on the slip and I think perhaps we have covered it."

Question: "Is the terminal condition ever easy to explain?"

Answer: "I don't know. He was not on my service at the time. He was admitted to Dr. Gormley's service the day he went off.

"The final diagnosis was hemochromatosis with involvement of the pancreas and heart and it was supposed that other organs were involved as they usually are."

Dr. Gormley: "An interesting case was reported in the Archives of Internal Medicine that did not have involvement in the pancreas although it was in the liver. His appearance was dusky. At first, there was more of a slate color than one which is

typical of a diabetic. Also we mentioned a melanoma. I think in this way, we see a good many people that are pigmented and go on and die of something else but they are not diagnosed as hemochromatosis."

Answer: "What Dr. Gormley says about unrecognized cases is true. A number of cases die of other things and if the idea that it is a copper ingestion were present, it might be different."

Dr. Gormley: "I know there are some German cases reported where they thought it was in the food. There is enough copper in some foods to start it."

Question: "Would you attribute anything particularly to the tingling sensation in the legs?"

Answer: "I don't remember that fact but I think it might easily be explained by the fact that he had diabetes."

PRESENTATION OF POSTMORTEM FINDING.

Dr. Clarke: "Regarding Dr. Gormley's remark concerning the patient that had hemochromatosis without diabetes, a couple of years ago I autopsied a patient who had typical hemochromatosis but had never had glycosuria.

"At the time of postmortem as far as the skin was concerned, it was noticed that the face, arms, legs and thighs had somewhat of a brown color. The peritoneal cavity contained some 200 cc of a clear fluid. There was no fluid in the pleural cavities. There was edema of the feet and legs. The liver weighed 2,300 grams. It was larger than normal but when we come to examine it we find it definitely sclerotic. One can see that it is divided up into tiny little lobules by a connective tissue increase about them. This is a type of cirrhosis with an increase in size. The most striking thing is the color. It is a dark brown. The Prussian blue reaction for iron is deeply blue. Here is a portion of the pancreas. It is a rather fatty pancreas but that is not unusual. Here again the striking thing is the color. The normal pancreas is very light in color. This gives a very strikingly positive iron reaction. The heart is not large. There is considerable fat in the epicardium. The coronary vessels are slightly tortuous. The valves are perhaps a little bit thickened but not more than frequently is seen. Here again it is the color of the heart muscle which is most outstanding and again is the strong iron reaction. We might say the entire intestine had a color much like the liver and pancreas. On the gastric mucosa is a lighter brown color and this brown on the mucosa gives a definite iron reaction. Other intestines have the same brown color but do not give the iron reaction. The pigment here fades with hydrogen peroxide which is characteristic of hemofuschsin. While we have the caecum here, we can see the appendix which presents an unusual appearance. The opening of the appendix into the caecum is entirely obliterated and the lumen of the appendix is greatly distended forming a thin walled tube measuring 3 cm. in diameter. A mucocele or hydrops of the appendix. The kidneys have a dark color. The capsule strips easily leaving a smooth surface. I think we could not call these arterio-sclerotic kidneys. Here again, the brown color and some iron but not to the extent we would expect to see from the color. In the fresh tissue of the brain, there was a distinct brownish color of the cortical tissue. Before fixation it was not so colored as it is in the specimen. In the meninges was a brownish color and here again we found a positive test for iron. The spleen is the same color.

"I will pass this pan around so you can see the amount of iron present in the tissues. The skin here was taken from the abdominal wall. You can see the definite iron reaction."

Question: "Do the adrenals have iron pigment?"

Answer: "Some, but not much."

"As far as the histology is concerned, I have some pictures which I will pass around.

"First a low power picture of the liver. You can see the connective tissue dividing the liver up into lobules.

"A little higher power which shows much the same thing. In the connective tissue you can see lymphocytes and large black cells.

"High power, which shows the liver cells and the pigment within them.

"Still higher power. Some of these cells have so much pigment that the nucleus is obstructed.

"This is a high power from the area of connective tissue to show within the connective tissue large mononuclear phagocytes filled with pigment. When the liver cells degenerate, the pigment is freed and taken up by phagocytes.

"Pancreas: At the top is on the Islet of Langerhans. There is much pigment in the cells of the external secreting portion of the pancreas. There is fibrosis but it is not marked.

"Dr. Burgess has discussed the etiology of this condition. I believe Dr. Mallory's idea is that the

copper combines with the blood pigment in such a stable way that it cannot be converted into bile pigment in the usual manner. Another possibility is that it injures the cells of the reticulo-endothelial system so that they are no longer able to break up the pigment in the normal way. As Dr. Burgess mentioned, Mallory's work is not universally accepted. Possibly copper is not the etiological agent.

"All the clinical symptoms including, I think, the myocardial failure can be explained on the basis of the damage to the tissues which accompanies the deposition of the pigment within them."

Oct. 28, 1930.

Case Presented by Dr. Peter P. Chase.

The following mimeographed history was distributed:

B. W.: Colored; female, 29; admitted May 1, 1930.

C. C.: Jaundice.

P. I.: Patient was fairly well until January of this year, then she began to have attacks of jaundice, does not know exactly how long attacks but with them she would be nauseated, vomit and have some fever and her stools would be clay colored and skin would itch. She has lost about 40 lbs. in weight since January. L. M. D. advised that she come into hospital for observation.

P. H.: Had some swollen glands on right side of neck several years ago. These did not follow sore throat. They were quite a while in developing and finally opened spontaneously and drained for some time. About 15 years ago had influenza followed by pneumonia. Three years ago was operated on for gall bladder trouble. Doesn't know just what was done at that time. She has not been well since.

S. H.: Married 5 years. No children or miscarriages. About a year ago patient was in hospital and had several biweekly treatments intravenously. History of trouble at that time not very clear. But she was to return for more treatments and has not. Has slight cough and has raised some blood on one occasion. No chest pain. Quite a bit of gas on stomach, which pains her until she can get rid of it. Says she has had evening temperature for 3-4 months.

P. E.: Very poorly developed and nourished adult colored female. Answers questions very slowly and appears dull mentally. Does not appear to be suffering pain.

Conjunctivae of eyes very yellow. Foul breath. Right side of neck shows several scars. Right sterno mastoid has been severed and belly appears less prominent than on the right.

Chest examination showed nothing remarkable.

Abdomen: Right paramedian high rectus incision scar. Tenderness in right upper quadrant between the navel and costal margin. There is resistance to palpation here and question of palpable mass. Very little muscular rigidity.

X-Ray May 2, 1930: Examination of the chest shows a markedly elevated rt. diaphragm beneath which is a cresentic area of decreased density. Otherwise, the lung fields are clear. The appearance probably represents a diaphragmatic abscess with a collection of gas below the diaphragm.

Several urine examinations showed nothing remarkable except small amount of albumen and presence of bile.

Sputum examination showed no tubercle bacilli. White count on May 4, showed 16,500 w.b.c. and 80% p.m.n., on May 12, 33,350 w.b.c. and 90% p.m.n. Wassermann and Hinton negative.

Correspondence with hospital where she had previously been stated that she was operated on July 20, 1927. "Gall bladder was found to be enclosed with adhesions which were freed with difficulty. Gall bladder distended with bile. To the inner side of the gall bladder lateral to it a large hard mass stony in feel extending into the liver and running along down the gall bladder pressing on the ducts. The appearance and feeling was that of malignancy. Gall bladder drained, no stones made out. The head of the pancreas was hard and stony to touch."

History five months later from that hospital. "She returned with complaint of cold in chest and a badly broken down area which nearly surrounds her neck. This area is draining a great deal of thick yellow pus. This area drained and the 3rd day after admission Wassermann taken 4 plus. She eats very well, but does not gain weight or strength. Appears very drowsy and sleeps the greater part of the time. Intravenous neoarsphenamine given every other day. Discharged improved, to return for inoculations and dressings."

For nearly 2 weeks patient was in hospital with temperature running in general from 101 to 103

and pulse from 100-130. During this time her general condition improved somewhat but she suffered considerable pain and it was finally decided, despite her very poor condition to do an exploratory laparotomy. It was done on May 13, 1930, through the old incision. The whole right upper quadrant was found filled with adhesions. Gall bladder was not distinguished, no stones could be palpated in the vicinity of the common duct and the pancreas appeared only slightly indurated. Because of the poor condition of the patient no further exploration of abdomen was made. After incision was closed she was turned over and needle introduced into 10th interspace post axillary line and below the 12th rib. No pus found.

The patient's general condition improved slightly. After the immediate effects of the operation had passed on the 3rd of June another X-ray was taken of the chest which appeared to show a pneumo peritoneum and suggestion of fluid.

She became much worse and asked permission to go home and this was granted, as it was felt that her case was hopeless; however, she remained in the hospital until her death on June 12, 1930.

October 28, 1930.

Dr. Chase: "This was a very sick young colored woman who came in on May 1st and as she gave the history at the time, it dated back about four months. She had been having jaundice for those four months with pain and fever and all the signs of obstructive jaundice but we got no history of any remarkable amount of pain. She also gave a history, as you see, of trouble of the glands of the neck. Also history of being operated upon for gall bladder trouble. She could tell us nothing of this operation. I saw the man who had operated on her and he told me she had cancer, syphilis and tuberculosis. The story that the physician gave was borne out in the history because she had had a cough and raising of blood. On examination she was very sick. We thought she was almost moribund. She had very yellow eyes. We did not do any icteric index but her eyes could tell us that she had a very large amount of jaundice. There was nothing more than what you can read here about the examination. We thought she had a distinct mass.

"The X-ray department, as you see here, gave us a diagnosis of subdiaphragmatic abscess. She was so sick that we felt we could do nothing but she kept on going without getting worse and finally on the 4th of May we decided to operate. White blood count went to 16,500. About this time we finally wrote to the hospital and got an accurate report of the previous operation. It states that she was operated on in 1927. 'The gall bladder was found involved with adhesions binding the mesentery and the duodenum to it. These adhesions were freed with difficulty. The gall bladder was found to be distended with bile. To the inner side of the gall bladder lateral to it was a large hard mass, stony in feel, extending into the liver and running along down the gall bladder, pressing on the ducts. The appearance and feeling was that of malignancy. The gall bladder was incised and bile removed. Ducts probed and no stones made out. Gall bladder drained in the usual manner. The head of the pancreas was hard and stony to touch. Two rubber tissue drains placed alongside the gall bladder down to the foramen of Winslow.' Following that, they gave us a very definite history of her having syphilis and a process in her neck.

"I operated on her on May 13 because despite the X-ray, she had a great many signs. With the mass which we could feel in the abdomen, I finally operated. When I got inside I did not do very much. I found no gall bladder. The pancreas was only slightly hard, so we simply did nothing. With the X-ray history of subdiaphragmatic abscess. I went in in two places with a very large needle and found nothing. We thought she was moribund. She wanted to go home to die and I gave her permission. When I saw her bed empty, I thought she had gone home. It was a month later that I found out that she died here and was autopsied. The reason we did not operate until two weeks after she was in was because we thought her moribund. I think that we felt when she died that her main condition was a cancer around the bile ducts. We found nothing that looked like a stone and with a very definite statement from the other hospital, we felt that she had a malignancy. We felt that she just died a cancer death."

Question: "If she had cancer at the time of the first operation is it likely that she would have lived for three years?"

X-ray: Dr. Batchelder: "I have two chest films to show. One taken the 2nd of May. The other the 3rd of June. She was admitted on May 1st. This one was taken on the day after admission. She died June 12th and the last one was taken nine

days before she died. These films were taken in the upright position which one can sometimes do with very sick patients but not often, for they are unable to sit up. Seeing she was sitting up for the examination, we are able to show a diaphragm shadow with beneath it, another shadow of decreased density representing air. The line below it also slightly curved, possibly representing the upper part of the dome of the liver and from that examination showing the high position of the diaphragm with gas below it we made a diagnosis of subdiaphragmatic abscess. That shadow can be demonstrated in very sick patients by lying them on their side and placing the film behind and then the shadow would shift to the lateral abdomen. Another method of diagnosing subdiaphragmatic abscess is by examination under the fluroscope. In this condition there is no movement of the diaphragm with respiration in most cases. Conditions above the diaphragm, such as pneumonia, restrict the motion but with subdiaphragmatic abscess, there is fixation. The film taken a month later shows much the same process only a larger shadow with a flat one below, representing fluid with air above it and again the diaphragm which is just a bit elevated above the position shown in the examination a month before."

PRESENTATION OF POSTMORTEM FINDINGS.

Dr. Clarke: "I will read part of the postmortem findings. As far as the external examination was concerned, there was nothing of importance. We noticed the scars of the neck and abdomen. The incision was limited to the abdomen. 'In the peritoneal cavity there are found to be numerous adhesions between the abdominal viscera and the scar of the surgical wound. The intestines are bound together. The liver is pushed down so that its lower margin lies a hand's breath beneath the costal margin. When a tiny puncture is made through the adhesions above the liver, considerable gas escapes. On enlarging this, there is found to be an enormous subdiaphragmatic abscess. The diaphragm is pushed up on the right to the level of the second rib. The liver is pushed downward. In the cavity thus formed, are 1500 cc of thin brown, foul smelling pus. The stomach and duodenum are laid open. There is found to be an ulcer of the duodenum. About the region of the ulcer are firm, fibrous adhesions binding the liver, the gall bladder and the adjacent structures together. A probe passed in at the ulcer passes up into the wall of the subdiaphragmatic abscess. The gall bladder is found buried in the adhesions. The cystic duct is entirely obliterated. The gall bladder contains a small amount of thin, turbid, watery material. A probe inserted at the ampula of vater passes first into the pancreatic duct. This is laid open. It is then passed into the common duct and very readily passes up into the liver ducts. There is, in the lumen, some thin, puriform material. There is, however, no actual obstruction, the probate readily passing through the entire length of the duct.' "

(Gross specimens and photomicrographs shown.)

"In attempting to correlate the postmortem findings and the clinical findings I think we can be fairly certain of what was present at the original operation. The ulcer was there. It had perforated. It had been walled off by adhesions. The mass found at that time was an inflammatory mass and not tumor. Whether or not the subdiaphragmatic abscess was present at that time, we have no way of telling. I doubt if it was. It had certainly increased in size from the time the X-ray picture was taken to the time of postmortem."

Question: "What was the cause of the jaundice?"

Answer: "The jaundice was intermittent. The ducts were in the inflammatory area. I suppose the jaundice was due to inflammatory swelling."

Question: "Did this patient have clay colored stools?"

Answer: "Yes."

Question: "Was this patient rather dull mentally when she came in?"

Dr. Chase: "Yes. She was very dull from the time she came in till the time she went out. History from her was very poor. We got very little out of her."

Question: "Did the positive Wassermann have any significance?"

Dr. Chase: "No. It was negative here but positive at the other hospital."

SOCIETIES

PROVIDENCE MEDICAL ASSOCIATION.

The regular monthly meeting of the Providence Medical Association was called to order by the President, Dr. Clinton S. Westcott, on Monday

evening, October 6, 1930, at 8:45. The records of the last meeting were read and approved. The Standing Committee having approved their applications, the following men were elected to membership: Dr. Kalei K. Gregory, Dr. Harry M. Kechijian, Dr. B. S. McKendall.

The first paper of the evening, on "Intravenous Urography," was read by Dr. Emanuel W. Benjamin. After a brief review of the history of attempts at intravenous urography, he described the development of a non-toxic, harmless and efficient agent, uroselectan, by Zwicke. This substance is excreted quantitatively by the kidneys, it being possible to recover 95% of the compound from the urine. It is thus possible to use the method for estimation of kidney function as well as for visualization. Dr. Benjamin supplemented his talk by showing a series of very interesting slides illustrating X-ray pictures of the use of uroselectan in a series of cases at Mt. Sinai Hospital. He concluded that the method was of very great value in cases where retrograde urography could not be practiced. The paper was discussed by Drs. McAlpine and Kearney, who added observations made on cases in local hospitals, stressing the value of the use of the method in children. Dr. Gerber felt that this should be regarded as an epoch-making contribution to the science of urology. The paper was further discussed by Dr. Arthur Jones, Dr. Jacob Kelly, Dr. Anthony Corvese and Dr. Benjamin.

Dr. W. Louis Chapman read the second paper of the evening on, "The Decadent Anatomy of the Colon." He showed a large number of X-ray plates of carium in the colon and demonstrated the tremendous variation in the anatomical appearances, enlivening the exhibition with many keen comments on the habits of patients and their attending physicians. There was no discussion of the paper.

The meeting adjourned at 10:40 P. M. Attendance 100. The usual collation was served.

Respectfully submitted,

WILFRED PICKLES, M.D.
Secretary Pro Tem

HOSPITALS

MEMORIAL HOSPITAL

STAFF MEETING HELD OCTOBER 2, 1930

Meeting called to order at 9:15 P. M. Minutes of the preceding meeting read and approved. Dr. Kerney read the paper of the evening, "Intravenous Urography by Means of Uroselectan." Discussion: Dr. Jones with presentation of plates, Dr. Gerber, Dr. Sprague, Dr. Farrell, Dr. Batchelder, Dr. Chapin, Dr. Unger, Dr. Feinberg, Dr. Kelly, Dr. Moor, and Dr. Saklad. Motion made and seconded to thank Clambake Committee for their work.

Present—21. Adjourned at 10:48 P. M.

STANLEY SPRAGUE, M.D.
Secretary

STAFF MEETING HELD NOVEMBER 6, 1930

Meeting called to order at 9:15 P. M. Minutes of the preceding meeting were read and approved. Dr. Earl F. Kelly read the paper of the evening, "Treatment of Diabetes in Children." Discussion: Drs. R. Bates, P. Batchelder, E. A. McLaughlin, B. Feinberg, and J. F. Kenney. Communication of the American Medical Association regarding the percentage of autopsies required by the Council on Medical Education and Hospitals was read and placed on file.

Present—24. Meeting adjourned at 10:20 P. M.

STANLEY SPRAGUE, M.D.
Secretary

BOOK REVIEW

CERTIFIED MILK.

PUBLISHED BY THE AMERICAN ASSOCIATION OF MEDICAL MILK COMMISSIONS.

Certified Milk, published by the American Association of Medical Milk Commissions, contains the proceedings of the above society for the year 1929. Incorporated in the volume are the reports of various commissions throughout the country together with the proceedings of the annual conference of the Metropolitan Certified Milk Producers and Methods and Standards for the Production of Certified Milk.

There are many interesting scientific papers presented on such timely topics as calcium and phosphous utilization in health and disease, bovine tuberculosis, undalant fever and bacterial property of milk. All of the articles are written by able men who are leaders in their chosen field. The book is especially enlightening to all physicians who are interested in pure milk.